

Experts Contacted and Peer Review Process

10.1 Experts Contacted

The individuals listed below are experts in the ecology and management of species addressed in the LCR MSCP Conservation Plan and habitats associated with the LCR. These individuals were contacted during the course of the development of the LCR MSCP Conservation Plan and provided some contribution of their knowledge and expertise.

Name	Title	Organization
Patti Aaron	Environmental Specialist—Biology	Bureau of Reclamation
Ray Ahlbrandt	GIS Specialist	Bureau of Reclamation
Rob Bettaso	Native Fish Program Manager	Nongame Branch, Arizona Game and Fish Department
Kathleen Blair	Ecologist	U.S. Fish and Wildlife Service, Bill Williams National Wildlife Refuge
Quenton Bradwich	Wildlife Biologist	Utah Division of Wildlife Resources, Page, Arizona
Patricia Brown	Bat Consultant	Bishop, California
Tom Burke	Biology Group Manager	Bureau of Reclamation
Andrew Clark	Fisheries Program Manager	Arizona Game and Fish Department
Don Clark	Wildlife Research Biologist	Texas A&M University, College Station, Texas
Robert W. Clarkson	Biologist	Bureau of Reclamation, Phoenix, Arizona
Courtney Conway	Assistant Director	Arizona Cooperative Fish and Wildlife Research Unit, University of Arizona, Tucson, Arizona
Bruce Ellis	Supervisory Environmental Specialist	Bureau of Reclamation
Jackie Ferrier	Biologist	Imperial National Wildlife Refuge, U.S. Fish and Wildlife Service
Chester Figiel	Hatchery Manager	Willow Beach National Fish Hatchery, U.S. Fish and Wildlife Service

Name	Title	Organization
Terry Fulp	Boulder Canyon Area Office Manager	Bureau of Reclamation
Glen Gould	Ecologist	Bureau of Reclamation
Wayne Gustaveson	Wildlife Biologist	Utah Division of Wildlife Resources, Page, Arizona
Murrelet Halterman	Ornithologist	Southern Sierra Research Station, Weldon, Kern Co.
Charles Harris	Wildlife Biologist	Idaho Department of Fish and Game, Boise, Idaho
William Hunter	Research Ecologist	U.S. Fish and Wildlife Service
William Bradford Jacobson	Fisheries Program Manager	Arizona Game and Fish Department
Nathan Lenon	Environmental Specialist—Biology	Bureau of Reclamation
Paul C. Marsh	Associate Professor	Department of Biology, Arizona State University, Tempe, Arizona
Zane Marshall	Principal Biologist	Southern Nevada Water Authority
Julie Martinez	GIS Specialist	Bureau of Reclamation
Chuck McAda	Fish Biologist	Grand Junction, Colorado, U.S. Fish and Wildlife Service
Robert McKernan	Ornithologist	San Bernardino Natural History Museum, Redlands, California
Marty Meisler	Senior Environmental Specialist	The Metropolitan Water District of Southern California
Chuck Minckley	Fish Biologist	U.S. Fish and Wildlife Service
Wendell L. Minckley	Professor	Department of Zoology and Center for Environmental Studies, Arizona State University, Tempe, Arizona
Terry Murphy	Ecological Restoration Group Manager	Bureau of Reclamation
Theresa Olson	Wildlife Biologist	Bureau of Reclamation
Frank Pfeifer	Biologist; Project Leader for Vernal Field Station	U.S. Fish and Wildlife Service, Vernal, Utah
Fred Phillips	Director	Phillips Consulting
Elizabeth Pierson	Bat Biologist	Berkeley, California
Barbara Raulston	Wildlife Biologist	Bureau of Reclamation
Jim Rorabaugh	Biologist	U.S. Fish and Wildlife Service
Thomas Shrader	Ecologist	Bureau of Reclamation
Roger Sorenson	Hatchery Supervisor	Arizona Game and Fish Department
John Swett	Wildlife Biologist	Bureau of Reclamation

Name	Title	Organization
Joe Szewczak	Comparative Physiologist	University of California White Mountain Research Station, Bishop, California
Richard Tracey	Wildlife Biologist	University of Nevada, Reno
Gene Trapp	Professor Emeritus	California State University Sacramento
Kent Turner	Chief of Natural Resources	Lake Mead National Recreation Area
Jim Warneke	Fishery Program Manager	Arizona Game and Fish Department
Dennis Watt	Hydrologist	Bureau of Reclamation
William Werner	Aquatic Habitat Coordinator	Arizona Game and Fish Department
Don Young	Assistant Area Manager	Bureau of Reclamation, Yuma Area Office
Ruben Zubia	Managing Engineer	Brown and Caldwell

10.2 Peer Review Process

The LCR MSCP Steering Committee commissioned two separate scientific reviews of interim conservation strategy documents during program development in 1999 and 2002. The two review processes are described below. Both groups of reviewers were asked to focus on the technical and scientific merits of the respective documents. Policy and political issues related to HCP development were considered outside of the expertise of the scientific panels and were not included in the review. Also, because the documents were still in draft stage, the reviewers did not address issues regarding technical writing.

10.2.1 American Institute of Biological Sciences 1999 Review

The first scientific review was conducted by the American Institute of Biological Sciences (AIBS) from June through October 1999. The subject of the review was the *Draft Conservation Strategy for the Lower Colorado River Multi-Species Conservation Program* prepared by Ogden Environmental and Energy Services Co., Inc. (Ogden). The objective was to review the draft Conservation Strategy for completeness and scientific merit, to aid in preparing the draft strategy for approval and endorsement by the LCR MSCP Steering Committee. The draft Conservation Strategy was an interim product intended to detail the scientific approach and technical knowledge to be used in the subsequent development of a conservation plan.

AIBS convened a six member panel comprising:

Bertin W. Anderson, Ph.D. (Panel Chair): Bertin W. Anderson is founder and President of the Revegetation and Wildlife Management Center. His expertise lies in classifying wildlife densities associated with southwestern riparian and marsh habitat on a species-by-species basis for terrestrial vertebrates, specifically birds and small mammals.

James E. Deacon, Ph.D.: James E. Deacon is Distinguished Professor, University of Nevada Las Vegas, Department of Environmental Studies. He specializes in the conservation of desert fishes.

Laura F. Huenneke, Ph.D.: Laura F. Huenneke is Professor and Department Chair, New Mexico State University, Department of Biology. She has considerable expertise in assessing spatial and temporal patterns in desert community primary productivity.

Robert D. Ohmart, Ph.D.: Robert D. Ohmart is Professor of Biology, Department of Biology, Center for Environmental Studies, Arizona State University. He focuses on biotic and abiotic factors that are important in the development of proper function conditions in western streams; the ecology of western riparian obligate vertebrate species; and studying how the impacts of major stressors to these species can be mitigated to avoid species density reductions and extirpation.

Juliet C. Stromberg, Ph.D.: Juliet C. Stromberg is Associate Professor, at the Arizona State, University, Department of Plant Biology. She has worked extensively in the areas of riparian restoration in arid-region riparian ecosystems.

Gary Voelker, Ph.D.: Gary Voelker is Curator, University of Nevada Las Vegas, Barrick Museum of Natural History. He has field experience in the collection of avian specimens throughout the southwest. His research includes historical biogeography and the evolution of migration in widely distributed avian taxa.

One of the key recommendations of the panel was to change the approach utilized in the LCR MSCP from a species based approach to a habitat approach. This would entail creation of integrated habitat mosaics in areas along the river ranging from aquatic to mesquite communities.

The panel briefed the Steering Committee on their review and recommendations on July 12, 1999, and submitted a final report on October 28, 1999. Key recommendations included the following:

1. Employ a habitat-based, rather than species-based, approach.
2. Focus on restoration and management of an integrated mosaic of habitat types, including open water, backwater, marsh, riparian, and mesquite habitats,
3. Prioritize development and implementation of the conservation plan based on the following general cornerstone strategies:
 - a. restore or rehabilitate natural ecological processes and conditions;
 - b. protect, enhance, restore habitat and protect large blocks of habitat;
 - c. directly manipulate biotic populations and restore natural biotic communities; and
 - d. implement research, monitoring, and adaptive management.

10.2.2 M3 Research 2002–2003 Review

The second peer review process was conducted on the Conservation Plan between November 5, 2002 and January 21, 2003. In November 2002 M3 Research of Olathe, Colorado was requested to establish a review team and conduct a review of various LCR MSCP planning documents completed in 2002. Dr. Lawrence Garrett, Principal investigator of M3 Research, assisted by Dr. Lawrence E. Stevens, Stevens Consulting, Flagstaff, AZ, established the team, and Dr. Garrett facilitated the review. Three on-site meetings were conducted in Las Vegas, Nevada, to permit interaction among the LCR MSCP Steering Committee, LCR MSCP Science Review Subcommittee, LCR MSCP technical consultants, and the Science Review Team. A final report was submitted on January 21, 2003 to document the review.

The charge to the Science Review Team was to provide a review of the technical and scientific basis for the Conservation Plan as well as the provided information that supports the LCR MSCP. Specific attention was to be given to the habitat requirements of specified focus species, the research and monitoring plan, the conservation plan, and the proposed adaptive ecosystem management process. These areas were also addressed in responding to 20 questions posed by the LCR MSCP technical consultants and Steering Committee.

The Science Review Team of 6 members was selected from a list of 18 active, interdisciplinary scientists. Scientists were required to have working knowledge of ecosystems of the Southwest, but have no involvement with the LCR MSCP. Dr. L. David Garrett of M3 Research operated as the team leader, facilitating the science review effort and developing associated reports. He was supported in those efforts by Dr. Lawrence E. Stevens, Principal of Stevens Consulting.

The Science Review Team was comprised of the following members:

L. David Garrett, Ph.D.: David Garrett of M3 Research specializes in riparian and terrestrial restoration programs. Dr. Garrett's academic training is forest biology, ecosystem analysis, and economics. He has extensive experience in Southwest riparian, riverine and watershed systems assessment and restoration.

Lawrence E. Stevens, Ph.D.: Lawrence Stevens' academic background is in regulated river ecology, particularly riparian and plant ecology. He was the reviewer for plant and riparian ecology studies and planned management actions. Dr. Stevens also assisted Dr. Garrett in facilitating the review.

William E. Haas: William Haas is Principal Biologist with Varanus Biological Services Inc., San Diego. He has conducted extensive study of birds of the Southwest and West, and is an authority on western protected species.

David K. Kreamer, Ph.D.: David Kreamer is Professor of Geoscience and past Director of the Water Resources Management Graduate Program at the University of Nevada, Las Vegas. He has extensive expertise in flow evaluations and water quality.

Rich A. Valdez, Ph.D.: Rich Valdez is a certified Fisheries Scientist and principal Fish Ecologist for Valdez Consulting of Logan, Utah. He has conducted extensive systems studies of the long-lived native fishes of the Colorado River.

Ellen E. Wohl, Ph.D.: Ellen Wohl is a Professor of Hydrology at Colorado State University. She is an expert on flow and geomorphology, and their implications to biotic communities.

The Science Review Team concluded that:

1. The LCR MSCP technical consultant's approach was correct in preparing the Conservation Plan;
2. Mitigation offered is reasonable and commendable;
3. Data are lacking for nearly all species; therefore, there is significant weakness in the supporting science base;
4. Adaptive ecosystem management is the best approach to determining solutions;
5. A true MSCP is driven by an ecosystem approach and by a goal of achieving ecosystem health, but, because of the current lack of data, the LCR MSCP is more a mitigation program to avoid jeopardy;
6. The LCR MSCP Steering Committee should establish clear, appropriate criteria for selecting and prioritizing ecosystem programs/species to be included;
7. Front-loading the implementation phase with research and monitoring is needed to gain better insight on species needs and to test habitat restoration concepts before committing to large-scale actions;
8. An adequate process is needed by which stakeholder concerns are resolved or mitigated; and
9. Maintenance of broad stakeholder participation is critical to an adequate design.

The LCR MSCP Steering Committee accepted the report from the Science Review Team at its February 27, 2003 meeting. The Steering Committee agreed to accept the findings and recommendations of the report and instructed the technical consultants to incorporate them in the LCR MSCP Conservation Plan as appropriate.